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Somalia: Rift Valley Fever

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Somalia:

The Perfect Conditions for Rift Valley Fever

Figure 1: Africa; Somalia is highlighted red (wikipedia.org/wiki/Geography_of_Somalia)

Perfect Weather for Dambos:

Somalia's weather is generally hot year long, due to its close location to the equator. With each year comes the worry of excessively rainy seasons. This is due to the condition the wet weather causes. For example, studies were done in the year 2006 on rain patterns and how they affect the land and vegetation. It was found the the elevated rainfall caused an abundance of vegetation in the months September through December. This then caused flooding. Flooding in a warm location, like Somalia, leads to good conditions for dambo formations. Dambo formations are also a name for the habitats of mosquitos. These habitats are typically in low-lying areas. When the soil is flooded, the infected mosquito eggs laying dormant in the soil then hatch. This is how the virus Rift Valley Fever is spread to both animals and humans. Since rainfall can be predicted, looking at previous years rain weather patterns with the prediction of rain can help predict the outbreak of Rift Valley Fever. Even though Rift Valley Fever can be somewhat predicted by weather patterns, it does not lessen the heavy, negative impact that RVF has on Somalia. But some of the biggest problems Somalia faces come from problems rooted deep in the history of the country.

Basic Information:

Somalia is located on the head of the horn of Africa (pictured on the left). Although it has no major landmarks, Somalia boarders both the countries Kenya and Ethiopia. It borders the Indian Ocean and also the Gulf of Aden. Somalia, a nation in transition, has a population about 14.9 million people currently residing there. Of the population, about 32% lives in an urban area. It is estimated that the average age of the people of Somalia is about 16.6 years. Which is similar to the average ages of similar nations. Although it seems to progressive, Somalia is a developing nation that is still fighting to get it's government solidified.

Brief Governmental History:

Somalia has had an unsteady government since before 1969. Throughout the years, they transitioned from military control to many different transitional governments until finally collapsing 1991. Between the years 1994 and 2004, the United States and other countries were able to help Somalia establish a transitional government that would turn some success. In 2012, the success of an established government took place through an indirect vote for a new federal parliament and president. In February of 2017, The Federal Government of Somalia held its first national election. There was a new federal parliament elected along with the new present,

Figure 2: RVF Risk Map (www.cdc.gov/vhf/rvf/resources/index.html)

Somalia: At Risk for RVF:

The map to the left pictures the continent of Africa and the countries within. The tan highlights countries where statistics are unknown. The green countries are countries that report few cases of Rift Valley Fever and have the disease isolated. The blue countries represent an epidemic outbreak of RVF. As you can see, Somalia is one of many countries largely affected by RVF outbreaks.

One difference that sets Somalia apart is the lacking resources to deal with a Rift Valley Fever

Cause and Effect:

Somalia was imbalanced by the changing instability of their government for decades. This forced the population to individually find solutions to get off the streets or out of poverty instead of relying on the government. People lived in terrible conditions with little to no money or help. When many people are without homes and money, the maintaining sanitation is not a priority. All the combinations of the circumstances, from the government to the flooding season, make for the perfect conditions for an epidemic of many different diseases. Some of the diseases spreading throughout Somalia include: Typhoid fever, dengue, malaria, rabies, bacterial diarrhea, Hepatitis A and E, and Rift Valley fever. While none of these diseases are good for a nation in need of help. Rift Valley Fever is one of few diseases that the severity can be predicted by looking at weather patterns and prediction. But what makes RVF so unique is that while it can be predicted, it is still very hard to stop the spread of once the outbreak starts. RVF also infects animals. Once an animal is expected it cause an infertility rate

Figure 3: millions of people lost their home after the civil war began in Somalia in 1991. (http://www.bbc.com/news/world-africa-14094503)

Coverage of RVF:

The map to the right shows the areas at greatest risk for an Rift Valley Fever outbreak. As you can see, most of Somalia is covered in green, indicating that most of Somalia is at a great risk for an epidemic outbreak. The factors that contribute to help determine where an outbreak can occur include the evaluation of the geographical location, the types of vegetation, amount of predicted rainfall, areas of concentrated people, and lack of resources for an epidemic. This puts Somalia, and many other countries, at great risk for an outbreak of Rift Valley Fever.

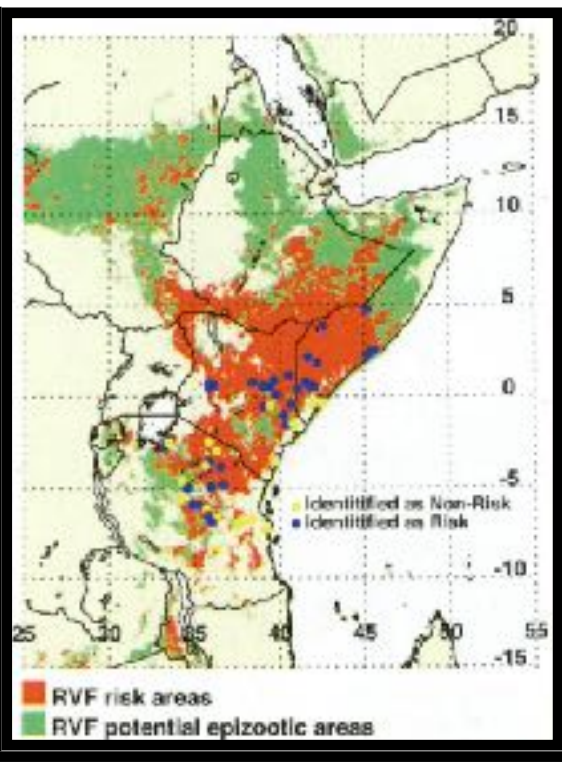

Figure 4: Map of RVF Risk Area (Anyamba, A., et. al.)

Transmission:

One thing that sets RVF apart from other diseases is how easily transmitted RVF can be. Also, the conditions for how it can be transmitted are very peculiar. The most common ways humans become infected with RVF is when they are bitten by an infected mosquito. But humans can also become infected with RVF if they come into contact with the blood, body fluids, or tissues of an animal infected with RVF. Typically, when RVF is transmitted from animal to human, it is through the slaughtering process, veterinary services, or obstetric services. It is important to not come

Figure 5: Man walking with Cattle. (cdc.gov/vhf/rvf/index.html)

Vaccinations are in the Works:

Epidemiologists have found that the best way to concur Rift Valley Fever would be to develop a vaccination that could help the immune system battle the RVF virus. There is not currently an active vaccination for RVF, but there are tests and studies being done to see if it is possible to have an effective vaccine. Because it is found that the RVF virus has very little genetic diversity, it is safe to assume that a vaccination would be one of the most effective solutions to possibly putting an end or having control over Rift Valley Fever.

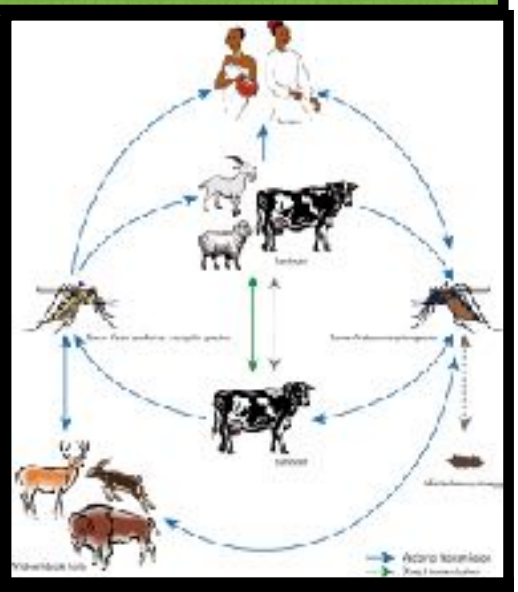

Figure 6: Map of how RVF is spread (frontiersin.org/articles/10.3389/fpubh.2014.00169/full)

Signs and Symptoms:

After the incubation period of 2-6 days, most people who contracted RVF experience a fever, weakness, back pain, and dizziness. A small percentage of people who have RVF will develop ocular disease which could have permanent vision loss. Sometimes, inflammation of the brain (Encephalitis) will occur. Less than 1% of people will develop hemorrhagic fever, which could lead to death.

Treatment:

Currently, there is no active treatment for RVF. Once a human contacts the disease, the mild symptoms can be treated. If ocular disease, encephalitis, or hemorrhagic fever occur, the patient is watched carefully to treat these problems if they are to occur. Sometimes, the virus goes unnoticed without symptoms. This can be dangerous if the patient develops any of the 3 previously mentioned outcomes. Less than 1% die from RVF.

Putting an End to the Outbreaks:

One of the most important steps to take to stop Rift Valley Fever from spreading is to have a stable vaccination for the population. Until the vaccination is perfected, there are steps that I think Somalia should be taking to prevent the disease from spreading. Education of the virus, how it contracted, and how it is spread could be one of the most important factors in preventing RVF. The prediction of rainfall patterns and flooding can help forecast if the virus will have major impact. Looking at these predictions and trying to stop water from pooling, flooding, or laying stagnant will help lower the chances of mosquitos breeding. The government should be providing mosquito nets to the people of Somalia. This could help prevent mosquitos from transmitting the disease to humans. Education and laws on the slaughtering of animals and veterinary practices could help limit the disease spread by exposure in those situations. Overall, the government of Somalia needs to be assisting the population with the education and resources to help put a stop to (or control) the next outbreak of Rift Valley Fever. Until a vaccination becomes possible and can be easily accessed by the population, more government intervention is the only way to control Rift Valley Fever epidemics.

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